

REMARKS/ARGUMENTS

The above amendments and the following remarks are in reply to the final Office Action of 05/09/2007. In light of this reply, reconsideration of this application is respectfully requested.

Twelve claims (1, 3-13) were pending in this application. In the above amendment, claim 3 was amended to comply with a requirement of form and to present the rejected claims in better form for consideration on appeal, and no claims were cancelled or added. Accordingly, 12 claims (1 and 3-13) remain pending for reconsideration.

In section 3 of the final Office action, the Examiner objected to claim 3 because of the informality that the tense of the word 'belong' is incorrect and should be replaced with 'belong-ing' to effectively correct the claim. Responsively, claim 3 has been amended in the above amendment as suggested to correct this requirement of form.

In section 5, the Examiner rejected claims 1-3, 5-6 and 9-10 under 35 U.S.C. 102(b) as being anticipated by Nitta et al. (US 6,801,178), stating, in pertinent part,

"With respect to claim 1, Nitta discloses ... a digital/analog converter (11-15 in fig. 1; col. 4, lines 36-38) converting the digital gray data (5 in fig. 1) from the signal controller (1 in fig. 1) into analog voltages (VGO-VG255 in fig. 6) and supplying the analog voltages (16 in fig. 1) to the data driver as the gray voltages,"

and in section 2, further stated that,

"The Applicants argue ... that Nitta does not disclose a digital/analog converter, which converts digital gray data into analog voltages. The main issue of contention seemingly that the Applicants do not feel that the set data of Nitta is equivalent to digital gray data, and is rather control data.

The Examiner respectfully disagrees. Nitta explains that the set data contains the correspondence relationships between the liquid crystal display data and the liquid crystal gray scale voltage (col. 4, lines 36-38). Thus the set data is clearly more than just simple control data. This description of Nitta's set data seems to very easily fit into the broadest reasonable interpretation of "digital gray data." Furthermore, Nitta's description of "set data" seems to be in line with the current invention's understanding of digital gray data, which in paragraph 80 states that digital gray data corresponds to: "calculated target gray voltages."

In short, the set data of Nitta more than fulfills all the currently claimed limitations regarding "digital gray data" and is therefore seen as an equivalent." (Emphasis added.)

In light of the following remarks, reconsideration of the above rejection and holding is respectfully requested.

1. With respect to Nitta ('178)

As illustrated in FIGS. 6 – 8 of Nitta, “selectors” 207 and 208 of a gray scale voltage generating circuit 16 include a plurality of switches, the states of which are respectively defined by signals from a register 13. Thus, each of the selectors 207 and 208 selects voltages VG8, VG16, VG24, VG56, VG200, VG208, VG216, VG248, ... in accordance with a signal from the register 13, thereby purportedly functioning as a “D/A converter.” That is, as described in Nitta and shown in FIG. 7 thereof, when the switch of the selector 207 that is connected to a line B1 is turned on, a voltage V0 is outputted as the voltage VG8, and as shown in FIG. 8, when the switch of the selector 208 that is connected to a line W6 is turned on, a voltage V8 is outputted as the voltage VG200. As a result, the selectors 207 and 208 operate to select reference voltages V0 and V8, as described at col. 7, lines 16-33 of Nitta.

As illustrated in FIG. 6 of Nitta, the gray scale voltage generating circuit 15 divides a voltage between the reference voltages V0 and V8 that are defined by the selectors 207 and 208 using resistors 205 to generate a plurality of gray scale voltages VG0 – VG255. That is, although the Examiner contends that the gray scale voltage generating circuit 15, including the selectors 207 and 208, purportedly functions as a D/A converter, the gray scale voltage generating circuit 15 in fact functions as a voltage divider. It should further be noted that, at this point, the divided voltages are all analog voltages.

Additionally, as illustrated in FIG. 1 and described at column 4, lines 50-54 of Nitta, by operating the gray scale voltage selector 26, one of the analog gray scale voltages generated by the gray scale voltage generating circuit 15 is selected as a voltage corresponding to display data DATA, which is stored in a “data latch B” 24 as a digital type signal, and the selected voltage is applied to the liquid crystal panel 10 through an output buffer 28. Accordingly the purported “D/A converter” of Nitta is the gray scale voltage selector 26, not the gray scale voltage generating circuit 15.

Further, as described at col. 4, lines 36-38 of Nitta, the register 13 does not store the liquid crystal display data DATA, but rather, the correspondence relationships between the liquid crystal display data DATA and the liquid crystal gray scale voltage.

2. Differences between Nitta and the present invention

In light of the foregoing, it may be seen that, although the Examiner contends that the gray scale voltage generating circuit 15 is a D/A converter, the gray scale voltage generating circuit

15 of Nitta is a voltage divider that includes selectors 207 and 208 to generate the plurality of analog voltages. That is, the gray scale voltage generating circuit 15 of Nitta is not the same as or the functional equivalent of the digital/analog converter of the present invention.

In addition, as distinctly claimed in claim 1 of the present invention, the description of "a signal controller supplying image data to a data driver and generating a digital gray data based on a distribution of grays of the image data for one frame," the signal generated by the signal controller is a digital type of signal, whereas, the signal generated by the gray scale voltage generating circuit 15 of Nitta is an analog type of signal. Thus, the present invention utilizes a true D/A converter to convert the digital gray data into an analog gray data to transmit it to the data driver, whereas, Nitta does not require a D/A converter, since the gray scale voltage generating circuit 15 generates the analog signals and transmits them directly into the gray scale voltage selector 26 without any digital to analog signal conversion. Thus, as stated at column 4, lines 50-54 of Nitta, it can be seen that the gray scale voltage selector 26 of Nitta in fact corresponds to the data driver of the present invention.

In light of the foregoing distinct differences between Nitta and the present invention, it is respectfully submitted that independent claims 1 and 9, as well as the claims respectively dependent from them, are patentably distinguishable over the Nitta et al. '178 reference, and that upon reconsideration, their rejection in view of this reference should be withdrawn.

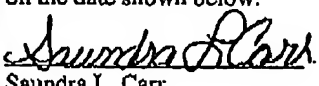
In section 7, claims 4 and 13 were rejected under 35 U.S.C. 103(a) as being unpatentable over Nitta et al. above in view of Kitahara et al. (US 6,847,377). However, a review of the Kitahara '377 reference reveals that it does not supply any of the deficiencies in teaching of Nitta et al. '178 discussed above *vis-à-vis* independent claims 1 and 9, from which claims 4 and 13 depend, and accordingly, it is respectfully submitted that these claims are likewise patentably distinguishable over the combination of Nitta et al '178 and Kitahara et al '377.

In section 8, the Examiner objected to claims 7-8 and 11-12 as being dependent upon a rejected base claim, but indicated that they would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims. However, in light of the above remarks, Applicant respectfully submits that all pending claims (1 and 3-13) of this application are patentable over the entire art of record and therefore requests that a timely Notice of Allowance be issued in this case.

Jul. 9, 2007 3:48PM No. 0310-1700-9S
MacPherson, Kwok, Chen & Heid
Amendment dated July 9, 2007
Reply to final Office Action of May 9, 2007

No. 0310-1700-9S
Doc. No. 0310-1700-9S
(Ref. No. OPP 021428 US)

If there are any questions regarding this reply, the Examiner is invited to contact the undersigned at the number below.

Certification of Facsimile Transmission	
I hereby certify that this paper is being facsimile transmitted to the U.S. Patent and Trademark Office on the date shown below.	
	July 9, 2007
Sandra L. Carr	Date of Signature

Respectfully submitted,



Don C. Lawrence
Applicant's attorney
Reg. No. 31,975

Tel: (949) 752-7040